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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,855	03/12/2004	Hisashi Amaya	12054-0024	6672

22902 7590 03/01/2006

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EXAMINER

ALEXANDER, MICHAEL P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,855

Applicant(s)

AMAYA ET AL.

Examiner

Michael P. Alexander

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim(s) 1-12 is/are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung (US 6,793,744 B1) in view of Hiramatsu et al. (US2001/0017173 A1).

Regarding claims 1-4 and 9-12, Jung teaches (col. 2 lines 16-22) a martensitic stainless steel comprising: less than 0.035 wt% C, less than 2.0 wt% Si, less than 2.0 wt% Mn, 12.0-16.0 wt% Cr, 1.5-4.5 wt% Ni, 0.08-0.20 wt% N, less than 2.0 wt% Cu, less than 2.5 wt% Mo, less than 0.3 wt% V, less than 0.3 wt% Nb, the residual being Fe and impurities. Jung does not specify adding any aluminum, therefore the steel of Jung would inherently have not more than 0.05% aluminum. The claimed amounts of C, Si, Mn, Cr, Ni, N, Cu, Mo, V and Nb overlaps with the ranges disclosed by Jung, which is

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prima facie evidence of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to select the desired amounts of C, Si, Mn, Cr, Ni, N, Cu, Mo, V and Nb from the ranges disclosed by Jung because Jung teaches the same utility throughout the disclosed ranges.

With respect to the claimed formula of $0.55\% < \text{Mo} + \text{Cu}/4 < 5\%$ in claims 1-4 and 9-12, the Examiner asserts that Jung clearly envisions compositions satisfying this formula because Jung clearly envisions compositions having Mo from 0.55 to 2.5 wt% out of the disclosed range of up to 2.5 wt%.

With respect to the limitation that the hardness would be 30-45 in HRC (i.e. 300-450 Hv) in claims 1-4 and 9-12, Jung teaches (Table 2) that the steel would inherently have the claimed hardness.

With respect to the limitation that the amount of carbides in grain boundaries of the prior austenite would be not more than 0.5 volume percent in claims 1-4 and 9-12, the Examiner asserts that the steel of Jung would inherently have the claimed carbide properties because Jung teaches (col. 4 lines 42-49) that tempering is optional and that tempering would occur at the low temperature of about 350 to 575 degrees C.

With respect to the limitations of the impurity levels of S and P in claims 1-4 and 9-12, Jung does not specify S and P content. However, it is well known as evidenced by Hiramatsu (0046-0047) that P should be minimized because it degrades toughness and corrosion resistance in martensitic stainless steels and that S should be minimized because it degrades toughness and causes hot roll cracking and surface roughness in martensitic stainless steels. It would have been obvious to one of ordinary skill in the

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art to modify the steel of Jung by minimizing P and S to within the claimed amounts in order to improve toughness, eliminate hot roll cracking and improve surface roughness as taught by Hiramatsu.

Regarding claims 5-8, Jung does not specify adding 0.0002 – 0.005% B. However, Hiramatsu teaches (0051) adding 0.0010 to 0.0070 wt% B (which overlaps with the claimed range, which is prima facie evidence of obviousness, see MPEP 2144.05 I) to martensitic stainless steel in order to suppress edge cracking during cold rolling or to improve hot workability. It would have been obvious to one of ordinary skill in the art to modify the steel of Jung by adding the claimed amount of B in order to suppress edge cracking during cold rolling or to improve hot workability as taught by Hiramatsu.

Response to Arguments

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Alexander whose telephone number is 571-272-8558. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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